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04/28/2006

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EXAMINER

CHEN, KEATH T

ART UNIT

PAPER NUMBER

1792

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/568,706	Applicant(s) OHMI ET AL.	
	Examiner Keath T. Chen	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4,9-14,19,21,24,28-30 and 33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,9-14,19,21,24,28-30 and 33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

The claim amendment filed on 06/12/2008, addressing rejection of claims 1-4, 9-14, 19, 21, 24, 28-30, and 32 from the first office action (12/13/2007), by amending claims 1, 14, and 28-30 and adding new claim 33, is acknowledged and will be addressed below. The examiner notices that the amendment was made without citing support.

Claim Objections

1. Claim 12 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The term "reduced-pressure processing apparatus" does not further limit "vacuum processing apparatus".
2. Claim 33 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim Rejections - 35 USC § 112

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 30 and 32 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter

Art Unit: 1792

which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. For example, where does the specification support "a second sealing member for sealing each portion except the door".

4. Claims 1-4, 9-14, 19, 21, 24, 28-30 and 32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "a small emission of organic matter" in claim 1 and "wherein the material with the small emission ... by an API-MS in atmospheric-pressure Ar" in claims 1 and 30 are indefinite because the measurement conditions are not specified. For example, what are the measurement temperature and flow rate?

The term "which are different from each other in frequencies of attach/detach ..." in claim 30 is a relative term which renders the claim indefinite. The term "high/low frequency" is not defined by the claim, the specification (page 8, lines 19-23, multiple range of definition) does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

These claims will be examined as without structural limitations from "high (or low) attach/detach frequency".

Claim 30, lines 7-8, the term "an emission prevention process" is not clear. It is not defined in the claim nor in the specification.

Claims 30-32 will be examined with the limitation of claim 3 as “emission prevention process”.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 28 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamazaki et al. (US 20020132047, hereafter '047).

'047 teaches all limitations of:

Claim 28: An organic EL element ([0004], lines 1-3) characterized by comprising an organic layer ([0019], line 8) formed by the use of the vacuum processing apparatus ([0019], last two lines) according to claim 1 (product-by-process claim, see MPEP 2113).

Claim 29: An organic EL display device ([0004], last 3 lines) characterized by comprising an organic layer formed by the use of the vacuum processing apparatus according to claim 1.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. **Claims 1-2, 4, 11-14, 24 and 33 are rejected under 35 U.S.C. 102(b) as being unpatentable over Phillips et al. (US 4889319, hereafter '319), further in view of Yoshiro et al. (English translation of JP2002-310302, hereafter '302). (US 20070037922 and 3114778 are cited for definition of perfluoroelastomer.)**

'319 teaches some limitations of claim 1:

A vacuum processing apparatus (Fig. 4) comprising a pressure-reduction container (#36, deposition chamber, col. 7, lines 3-4, at ultra high vacuum, col. 6, lines 40-45), exhaust means (pump 47, col. 7, lines 8-9) joined to said pressure-reduction container, and a processing object introducing door (#54, bakeable gate valve, col. 7, lines 23-25) connected to said pressure-reduction container (#36) through a door gasket (#92, O-ring of gate valve, Figs. 6 or 7), and gasket which is placed between the pressure-reduction container and said exhaust means to ensure airtightness between said pressure-reduction container and said exhaust means (gasket is required in pumps, not shown in Fig. 4), the gasket is formed by either one of a metal and a ceramic (see discussion below); wherein the material with the small emission of organic matter has a relative ion intensity which does not exceed 0.1% at a molecular weight of 100 or more when it is measured by an API-MS in atmospheric-pressure Ar (apparatus property, discussed below).

When the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent (*In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977); MPEP 2112.01). '302's perfluoroelastomer is presumed to be inherent of claim properties, especially measured at low temperature.

'319 further teaches that conventional vacuum systems have all-metal seals (col. 1, lines 58-62) including gasket for exhaust means; seals of various forms is required in doors at sample entry ports (col. 2, lines 9-11) because the frequency of open/close

Art Unit: 1792

(col. 2, lines 30-31) and cost of metal gaskets (col. 2, lines 23-31). '319's invention includes an elastomeric gasket (col. 2, lines 49-50) for the door gaskets.

'319 does not teach the other limitation of claim 1:

Said door gasket is made of a material with a small emission of organic matter.

'302 is an analogous art in the field of sealing material for a vacuum system, particularly in providing superior sealing performance (abstract). '302 recognizes the need to lower organic emission of volatile component in the next generation of fabrication factory ([0003]) and provides organic perfluoroelastomer ([0007]) with small emission of organic matter ([0044]).

At the time the invention was made, it would have been obvious to a person having ordinary skill in the art to have combined '302 with '319. Specifically, to have adopted the perfluoroelastomer of '302 as the elastomeric material for the gaskets in the apparatus in Fig. 4 of '319, for the purpose of reducing emission of organic matter, as taught by '302 ([0004]), and applied to the high frequency opening/closing door, as taught by '319 (col. 2, lines 30-31) and cost of metal gaskets (col. 2, lines 23-31).

Claim 33 is rejected for the same reason as claim 1 rejection above.

'319 further teaches the limitations of:

Claim 11: A degree of vacuum at the time of treatment is 100 Torr or less (col. 3, lines 23-24).

Claim 12: Said vacuum processing apparatus is a reduced-pressure processing apparatus (title).

Claim 13: Said vacuum processing apparatus is a vapor deposition apparatus (#36 deposition chamber).

Claim 14: A deposition source container (Fig. 4, #38 and #43, Knudsen cells, col. 7, lines 4-5).

Claim 24: The apparatus is capable of depositing an organic EL element material (intended use).

For claim 24, applicant's claim requirements "material put into said deposition source" is considered intended use in the pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter, 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458,459 (CCPA 1963); MPEP2111.02).

'302 further teaches the limitations of:

Claim 2: The constituent material of said door gasket contains organic matter.

Claim 4: A main component of said constituent material containing organic matter is a perfluoroelastomer. ('302 teaches the use of organic perfluoroelastomer as the

Art Unit: 1792

main component of gasket, made from polymerization of "tetrafluoroethylene" in [0010], line 2, and "CF₂=CF-O (CF₂)-1 -6-O-CF=CF₂", line 8, perfluorinated divinyl ethers (based on US 20070037922 and 3114778 for definition of perfluoroelastomer).

7. Claims 3, 30, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over '319 and '302, further in view of Hisaharu et al. (English translation of JP06- 107803, hereafter '803).

'319 and '302, together, teach all limitations of claim 2, as discussed above. '302 further teaches the treatment of sealant in acetone.

'302 does not teach the limitation of claim 3:

The constituent material of said door gasket has been subjected to an emission prevention process of contacting it with water at 80° C or more.

'803 is an analogous art in the field of sealing material, particularly in solving the gas emission of fluororubber (abstract, lines 1-2). '803 teaches treatment of crosslinked rubber, including perfluoroelastomer ([0017] 2nd last two lines) in contact with a solvent, including water ([0037], line 1), at 95-100° C to lower gas emission (abstract, lines 8-10).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have combined '803 with '302 and '319. Specifically, to have treated the gasket made of perfluoroelastomer of '302 in water at 95-100° C according to '803 for the purpose of lower gas emission, with a reasonable expectation of success.

From the above combination of '803, '319 and '302:

'319 further teaches some limitations of claim 30:

A vacuum processing apparatus comprising a plurality of airtight sealing members (some shown in Fig. 5, others required in pumps, for example, not shown in Fig. 4), which are different from each other in frequencies of attach/detach (capable of being attached/detached at different rates) and which includes a first sealing member for sealing a door used at a high frequency of the attach/detach (doors, col. 2, lines 9-31) and a second sealing member for sealing each portion except the door that is used at a low frequency of the attach/detach (pumps, col. 7, lines 8- 9) comparing with the door, wherein the first sealing member is formed by an organic matter (elastomer, col. 2, line 49) while the second sealing member is formed by a matter different from the organic matter (metal seals, col. 1, lines 58- 60, for vacuum system including pump).

'803 teach another limitation of claim 30:

(An organic matter) is subjected to the emission prevention process.

'319 further the other limitation of claim 30:

wherein the first sealing member has a relative ion intensity which does not exceed 0.1% at a molecular weight of 100 or more when it is measured by an API-MS in atmospheric-pressure Ar (apparatus property, discussed below).

When the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent (*In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977); MPEP 2112.01). '302's perfluoroelastomer is presumed to be inherent of claim properties, especially measured at low temperature.

'302 teach the other limitation of claim 32:

The organic matter of the first sealing member contains a perfluoroelastomer as a main component (see claim 4 above).

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over '319 and '302, further in view of Kenichi (English translation of JP09-189290, hereafter '290).

'319 and '302, together, teach all limitations of claim 1, as discussed above.

'302 and '319, together, do not teach the limitation of claim 9:

Said exhaust means comprises a pump and causes a small amount of an inert gas to flow upstream of said pump or at a pump purge portion.

'290 is an analogous art in the field of vacuum processing device (abstract), particularly solving the problem of by-product contamination ([0004], lines 1-5)). '290 teach an inert gas supply (Fig. 1, #24) upstream from the vacuum pump (#22) for the

Art Unit: 1792

purpose of automatically manageable vacuum processor, without depending on an operator ([0005], last 3 lines).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have combined '290 with '302 and '319. Specifically, to have included an inert gas supply port upstream from the vacuum pump of the vacuum processing apparatus of '302 for the purpose of automatically manage vacuum processor. Therefore, to have obtained the invention of claim 9.

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over '319 and '302, further in view of Ohmi (US 5863842, hereafter '842).

'319 and '302, together, teach all limitations of claim 1, as discussed above.

'319 and '302, together, do not teach the limitation of claim 10:

Said exhaust means comprises a primary pump, a secondary pump connected to an exhaust side of said primary pump, and a gas introducing portion for introducing an inert gas between said primary pump and said secondary pump.

'842 is an analogous art in the field of vacuum exhausting apparatus (col. 1, lines 8-10), particularly in solving the problem of impurities (col. 1, lines 20-29). '842 teaches the use of a secondary pump (Fig. 1, roughing vacuum pump) connected to an exhaust side of a primary pump (Fig. 1, #103, turbo-molecular pump), and a gas introducing portion (#114) for introducing an inert gas between said primary pump and said

Art Unit: 1792

secondary pump for the purpose of preventing reverse diffusion of the impurity (col. 1, lines 37-40).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have combined '842 with '302 and '319. Specifically, to have included a turbo-molecular pump and a roughing vacuum pump as the vacuum system for the vacuum processing apparatus of '302, and to insert an inert gas supply in between, for the purpose of preventing reverse diffusion of the impurity. Therefore, to have obtained the invention of claim 10.

The examiner notes that the use of dual pump is common practice to obtain a high vacuum system.

10. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over '302 and '319, further in view of Yamazaki et al. (US 20020132047, hereafter '047).

'302 and '319, together, teach all limitations of claim 14, as discussed above. '302 and '319 are silent on deposition source.

'302 and '319, together, do not teach the limitations:

Claim 19: An inner surface of said deposition source container contains at least one of an oxide or a nitride of an element selected from Si, Cr, Al, La, Y, Ta, Ti, and B, or C.

'047 is an analogous art in the field of vapor deposition ([0086]), particularly in solving the problem of providing high purity material for deposition ('047 abstract) similar

Art Unit: 1792

to avoiding volatile organic emission problem of '302. '047 teaches a film forming chamber (Fig. 5) having deposition source container (#509a and #509b), the crucible is made of quartz ([0070] lines 3-4, which clearly applies to #509a,b of Fig. 5), with organic EL element material ([0090], lines 2-4, the subject of '047 is about OLED); an organic EL element ([0002], lines 1-4) characterized by comprising an organic layer (abstract, last line); and an organic EL display device ([0004], lines 5-7) characterized by comprising an organic layer (abstract, last line).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have combined '047 with '302 and '319. Specifically, to have applied the organic EL element material, making organic EL element and display device, as taught in '047, in the apparatus of '302. Furthermore, to have adopted the quartz (SiO₂) deposition source container as taught in '047 (instead of Knudson cell as in '319). The motivation would have been providing high purity material for organic EL formation.

11. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over '302, and '319, further in view of Jabbour (US 20030026601, hereafter '601).

'302 and '319, together, teach all limitations of claim 14.

'302 and '319, together, do not teach the limitation of claim 21:

Said deposition source container contains at least one of a nitride of Al, B, or Si, C or a metal material.

'601 is an analogous art in the field of for OLED ([0005]), particularly in providing purified molecules for vapor deposition (abstract). '601 teaches crucible can be made of silicon nitride, boron nitride ([0013]) with baffle for the purpose of providing simultaneous in-situ purification and deposition of thin films of organic molecules ([0023]).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have combined '601 with '302, and '319. Specifically, to have adopted the SiN or BN as crucible material (the deposition source container), as taught by '601, for the purpose of providing deposition of thin films of organic molecules ([0023]). The selection of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, U.S. 327, 65 USPQ 297 (1945).

Response to Arguments

12. Applicant's arguments filed on 06/12/2008 have been fully considered but they are not persuasive.

13. In regarding to claim objections, see page 6, applicant argues that "the reduced-pressure processing apparatus or the vapor deposition apparatus will be collectively called a vacuum processing apparatus in this specification" further limits claim 12 from claim 1. Yet vapor deposition apparatus includes low pressure, atmospheric pressure, and high pressure apparatus. MPEP2110.01 section IV also cites "inventor may define

Art Unit: 1792

specific terms used to describe invention, but must do so ‘with reasonable clarity, deliberateness, and precision’”. Applicants’ lexicographic definition of a vacuum processing apparatus including atmospheric and high pressure vapor deposition apparatus is repugnant to customary meaning and not precise. In addition, claim 12 does not further limit the claim because a high pressure vapor deposition apparatus is read into claim 12 but not in claim 1, according to applicant’s definition.

14. In regarding to 35 USC 112 rejection, see page 7, applicant’s amendments failed to rectify the issues, as discussed in the rejection above.

15. In regarding to prior art rejections under 35 USC 102(b) rejection of claims 28 and 29, see bottom of page 7 to the first paragraph of page 9, applicant argues that EL element made from Yamakazi’s apparatus and the EL element made from the instant application are structurally different.

This argument is found not persuasive because:

“The arguments of counsel cannot take the place of evidence in the record”. See MPEP 2145 I.

Applicant’s statement “the impurities removed by the teaching of Yamakazi may be different than those removed by the apparatus of the invention as claim” (emphasis may) does not establish clear differentiation from the Yamakazi’s manufacture. The impurity depends on many factors, including the purity of the feedstock. Furthermore, as the apparatus age, the impurity level changes. The EL element made from Yamakazi’s at the starting of a clean apparatus or with high purity feedstock may be the same as the EL element of the instant applicant.

16. In regarding to 35 USC 103(a) rejection of claims 1, 2, 4, 11-14, and 24, see the second paragraph of page 9 to the third paragraph of page 11, applicant argues that: a) Yashiro '302 does not disclose a combination of different sealing material used in an apparatus; b) '302 does not define a material with a small emission of organic material; c) neither '302 nor Phillips '319 teaches "the material with the small emission of organic matter has ... by an API-MS in atmospheric-pressure Ar".

These arguments are found not persuasive because:

a) In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Phillips '319 discloses combination of different sealing material used in an apparatus, as put forth in the first complete paragraph of page 6 in the non-final office action (12/13/2007).

b) '302 does teach a material with a small emission of organic material, "'302 provides ... organic perfluoroelastomer ([0007]) with small emission of organic matter ([0044])", as set forth in the third complete paragraph of page 6 of the non-final office action (12/13/2007).

c) When the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent (*In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977); MPEP 2112.01).

17. In regarding to the dependent claims, see the bottom of page 11 to page 13, applicant' argument is based on the patentability of the parent claim. Since the parent claim is found not patentable, all dependent claims are not patentable.

Conclusion

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Keath T. Chen whose telephone number is 571-270-1870. The examiner can normally be reached on M-F, 8:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on 571-272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. T. C./
Examiner, Art Unit 1792

/Michael Cleveland/
Supervisory Patent Examiner, Art Unit 1792